

**Claims**

1. A nutritional composition for restoring or promoting an healthy and optimal microbiota ecosystem in humans or animals, which comprises at least one amino acid being selected in the group consisting of hydroxyl amino acids, sulfur-containing amino acids or heterocyclic amino acids, or their derivatives, in an amount efficient to favor the growth and the balance of bacterial microbiota.
2. The composition according to claim 1, which comprises at least one amino acid being selected in the group consisting of Threonine, Serine, Proline or Cysteine, or their derivatives.
3. The composition according to claim 1 or 2, which is formulated for human or companion animal consumption and/or administration, such as a pharmaceutical, a galenic, a nutritional, a food or petfood product or an infant formula.
4. The composition according to any of preceding claims, wherein the amino acid is in the form of free amino acids or amino acids hydrolysates of different source of animal or plant proteins, or protein source enriched in form of synthetic peptides, or with free amino acids or entire proteins from natural source or synthetically peptides, or combinations thereof.
5. The composition according to any of preceding claims, which comprises Serine in an amount of about 0.07 to 0.35 g/kg body weight/day; or Proline in an amount of about 0.07 to 0.3 g/kg body weight/day, or Threonine in an amount of about 0.04 to 0.20 g/kg body weight/day or Cysteine in an amount of about 0.03 to 0.15 g/kg body weight/day, or their mixtures thereof.
6. Use of at least one amino acid or a mixture of amino acids in an amount efficient to favor the growth of bacterial microbiota, for the preparation of a nutritional composition or medicament intended for restoring or promoting a healthy and

optimal microbiota ecosystem in humans or pets.

- 5 7. Use of at least one amino acid or a mixture of amino acids in an amount efficient to favor the growth of bacterial microbiota for the preparation of a composition or medicament intended for restoring or maintaining the integrity of gut barrier in frail population, such as infant, elderly or pet that present fragile ecosystem.
- 10 8. Use of at least one amino acid or a mixture of amino acids in an amount efficient to favor the growth of bacterial microbiota for the preparation of a composition or medicament intended for stimulating the immune defenses and reduce allergy in individuals, such as infant, elderly or pet that present fragile ecosystem.
- 15 9. Use according to one of claims 6 to 8, wherein the amino acid is selected in the group consisting of hydroxyl amino acids, sulfur-containing amino acids or heterocyclic amino acids, in particular Threonine, Serine, Proline or Cysteine, or their derivatives.
- 20 10. Use according to one of claims 6 to 9, wherein the amino acid is in the form of free amino acids or amino acids hydrolysates of different source of animal or plant proteins, or protein source enriched in form of synthetic peptides, or with free amino acids or entire proteins from natural source or synthetically peptides, or combinations thereof.
- 25 11. Use according to any of preceding claims, which comprises Serine in an amount of about 0.07 to 0.35 g/kg body weight/day; or Proline in an amount of about 0.07 to 0.3 g/kg body weight/day, or Threonine in an amount of about 0.04 to 0.20 g/kg body weight/day or Cysteine in an amount of about 0.03 to 0.15 g/kg body weight/day, or their mixtures thereof.
- 30 12. A method for restoring or promoting an healthy and optimal microbiota ecosystem in humans or pets, which comprises administering to the individual a

nutritional composition comprising at least one amino acid in an amount efficient to favor the growth and balance of bacterial microbiota and to reduce pathogens proliferation and risks of translocations.

- 5      13. A method restoring or maintaining the integrity of gut barrier in frail population, such as infant, elderly or pet that present fragile ecosystem, which comprises administering to the individual a nutritional composition comprising at least one amino acid in an amount efficient to favor the growth of bacterial microbiota.
- 10     14. A method for stimulating the immune defenses and/or reduce allergy in humans or pets, which comprises administering to the individual a nutritional composition comprising at least one amino acid in an amount efficient to favor the growth of bacterial microbiota.